



Denise Hammel, Environmental Management Coordinator

ECOENERGY PROGRAMS



Energy Awareness



Definitions

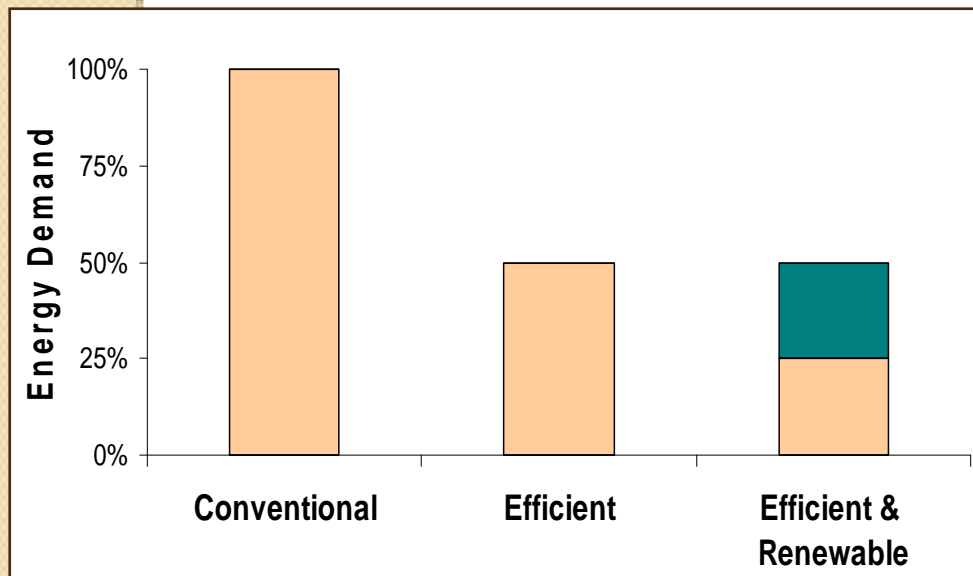
Clean Energy
Technologies

Energy Efficiency

Using less energy resources
to meet the same energy
needs

Renewable Energy

Using non-depleting natural
resources to meet energy
needs



Well Insulated Passive Solar House

Energy Efficiency

(using less energy to do the same task)

*55 % of energy demand
is for heating in remote
communities*

*all communities and new
and existing buildings
can benefit from
improved energy
efficiency*

*schools often largest
energy user*



Energy Efficiency Options



Compact Fluorescent Light Bulbs



- Each bulb costs \$5
- Save \$40 in electricity over 5 years
- Return on investment – **75%**
- Replace most heavily-used lights (or all lights!) with CFLs

Hot Water Tank

Insulation



Wraps around outside of hot water tank

- Cost \$35
- Saves \$30 per year in energy
- Return on investment - **90%**

Energy Efficiency in Houses & Other Buildings



use efficient windows
increase insulation levels
use good air sealing and
ventilation



upgrade windows and doors
use good building orientation

Savings Opportunities: Residential

- 10 – 15% savings can be achieved by making simple improvements and upgrades
 - Expected dollar savings of \$200-\$300 per home
- Examples:
 - Adding attic insulation
 - Reducing air leakage
 - Insulating basement walls
 - Installing programmable thermostats
 - Low flow showerheads
 - Fluorescent lighting
 - Turning lights off



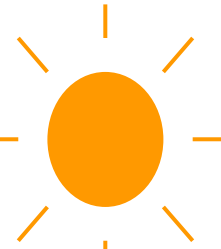
Renewable Energy Options

- Wind Energy
- Biomass
- Small Hydro
- Passive Solar
- Solar Air
- Solar Water
- Geothermal
- Photovoltaic



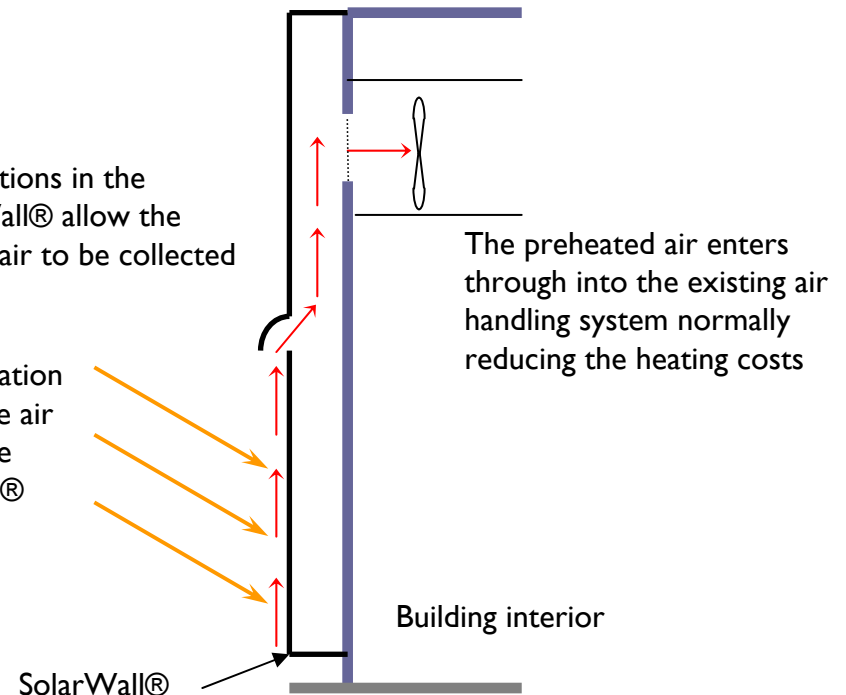
Savings Opportunities: Buildings

- By building new community
- Buildings with a large south facing wall, Solar Air Heating can reduce heating costs by thousands of dollars every year.
- The Simple Payback is typically 1-2 years.



Perforations in the SolarWall® allow the heated air to be collected

Solar radiation warms the air against the SolarWall®





○ **ECOENERGY FOR
ABORIGINAL AND
NORTHERN
COMMUNITIES**



ecoENERGY for Aboriginal and Northern Communities

- Building community know-how and capacity to develop renewable energy resources;
- Identifying and acting on viable energy efficiency opportunities;
- Completing community energy plans that reflect the realities of power and fuel markets/prices, and local demand for energy;

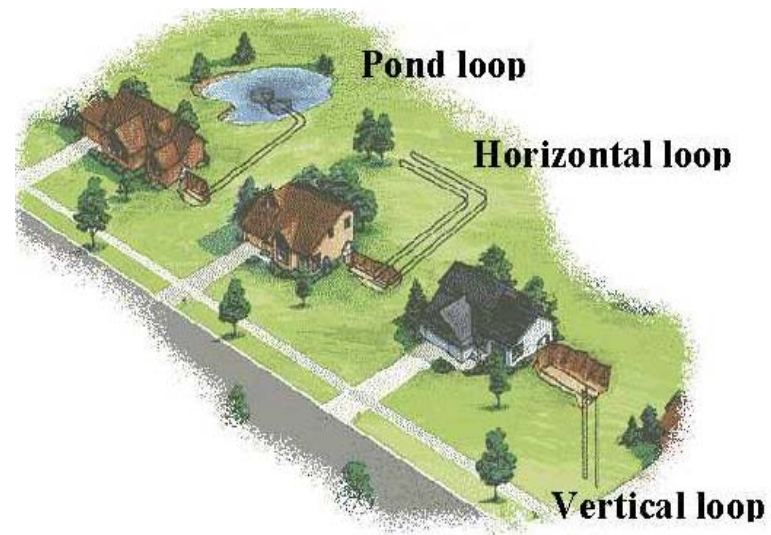
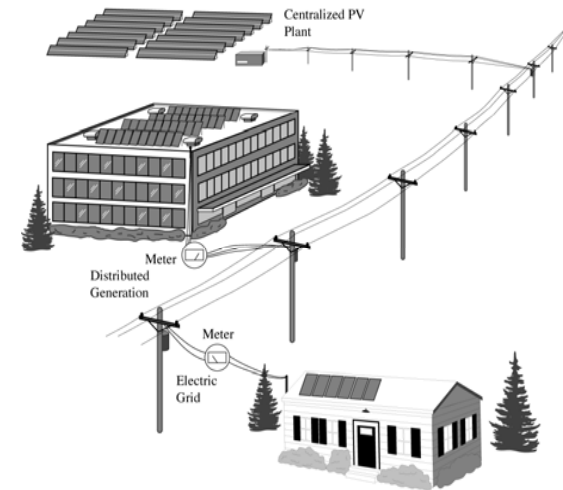


ecoENERGY for Aboriginal and Northern Communities

- Providing ‘early stage’ assistance to develop renewable energy resources/projects: including environmentally friendly small hydro, wind power, biomass generation, geothermal and solar energy; and,
- Identifying and acting on other opportunities to promote ecoENERGY in Aboriginal and Northern communities related to cleaner power and fuels to promote clean air, water, land and energy.

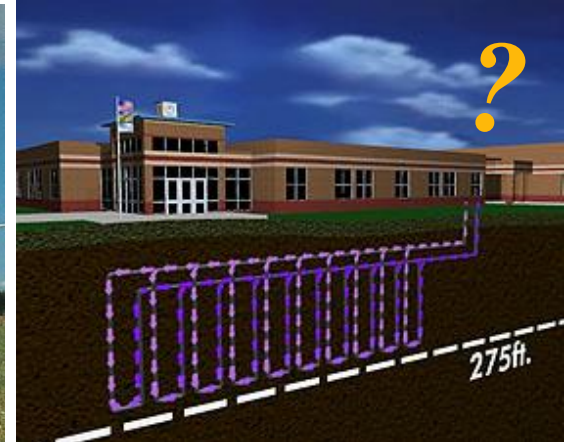


Community Energy Planning & Mapping



Community Energy Planning & Mapping

- Where are we today?
- What options do we have for tomorrow?



- ◆ How do we get there from here?

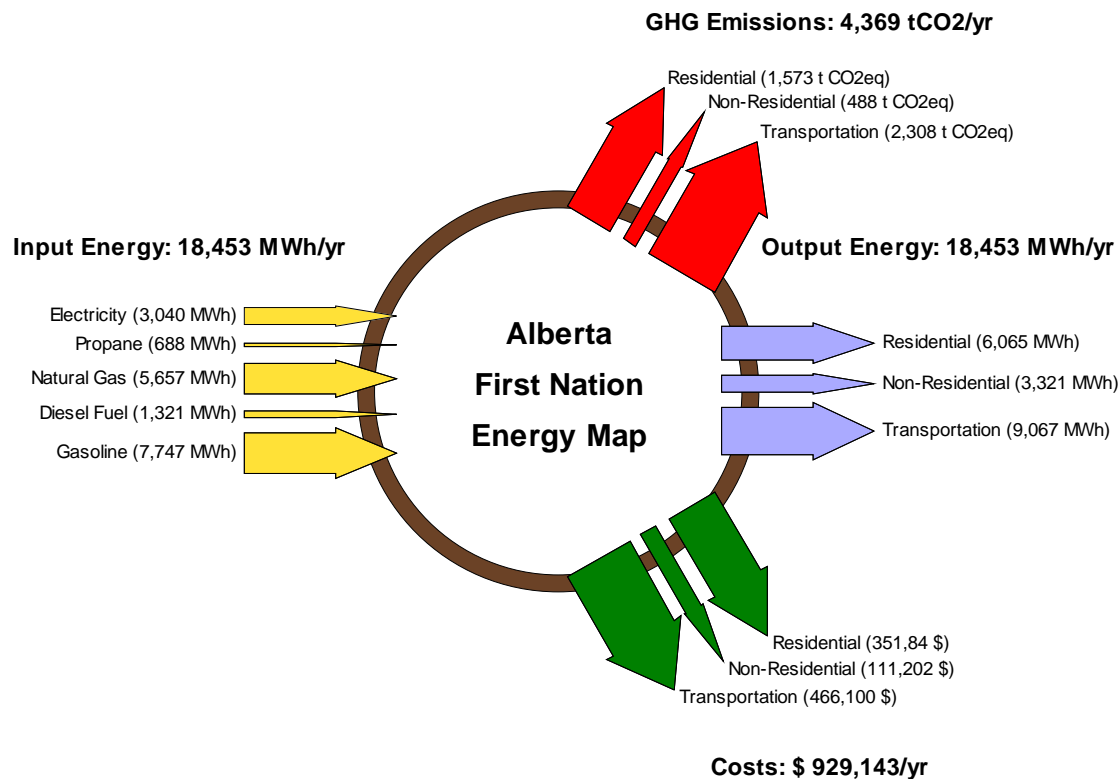


CEM & CEP Steps involved

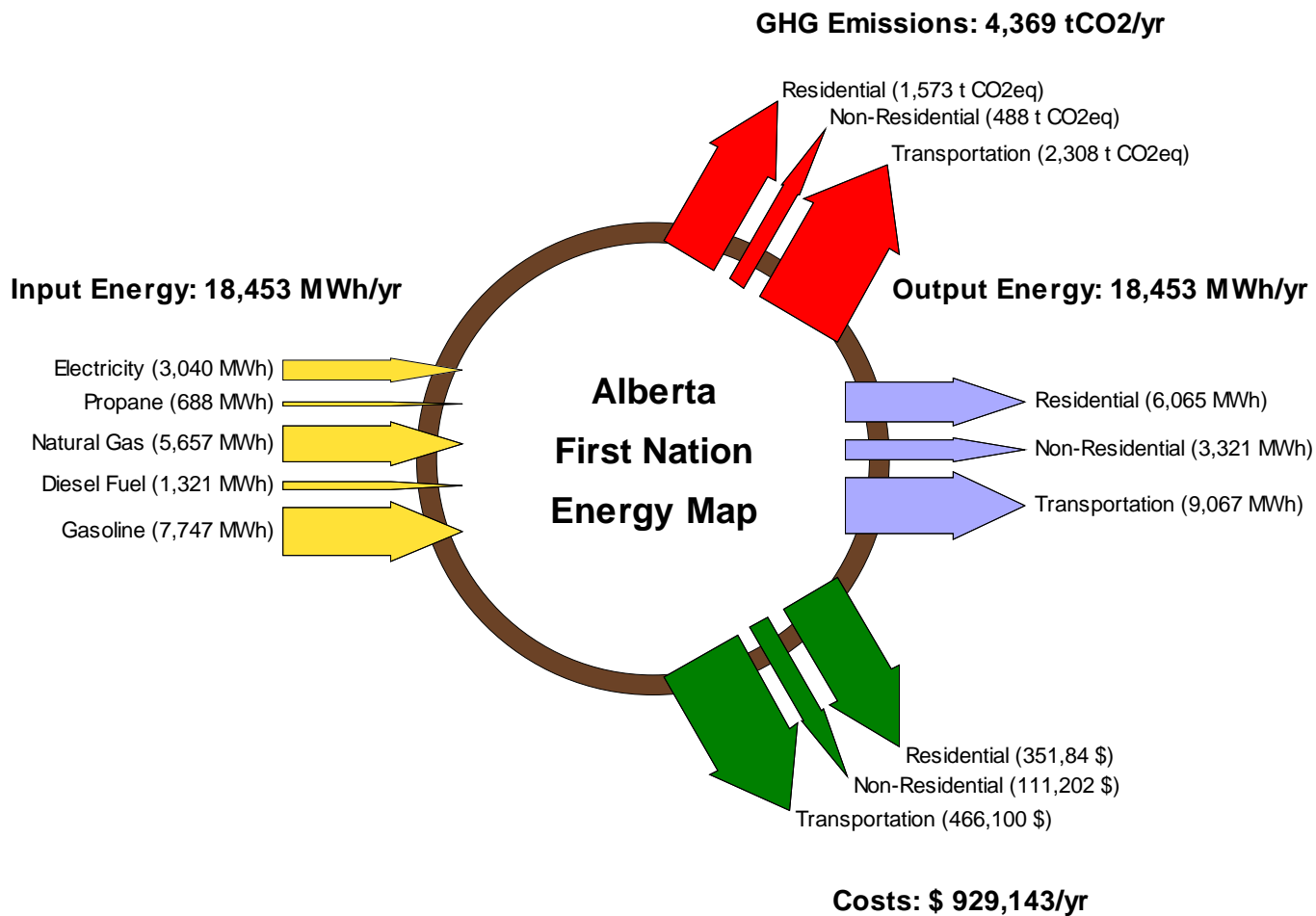
- Determine **community priorities**
- Understand how **energy is supplied** to a community, how it is **consumed**, and how much these activities **cost** individuals and the community.
- Analyze **energy management** options that might be available to a community.
- Decide which of those **options** make the most sense to the community and figuring out **how to implement them**.

2004-2006 Energy Mapping

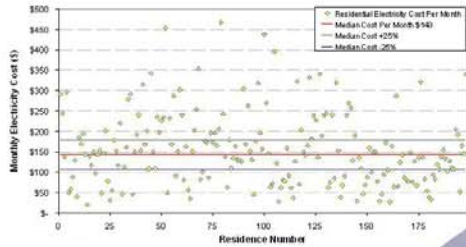
- First Nations in Alberta participated
 - 10 CEM (Treaty 6, Treaty 7, Treaty 8)
- Determine energy uses and costs
 - Economic and Environmental



Baseline 2005



FIRST NATION – 2004 COMMUNITY ENERGY MAP



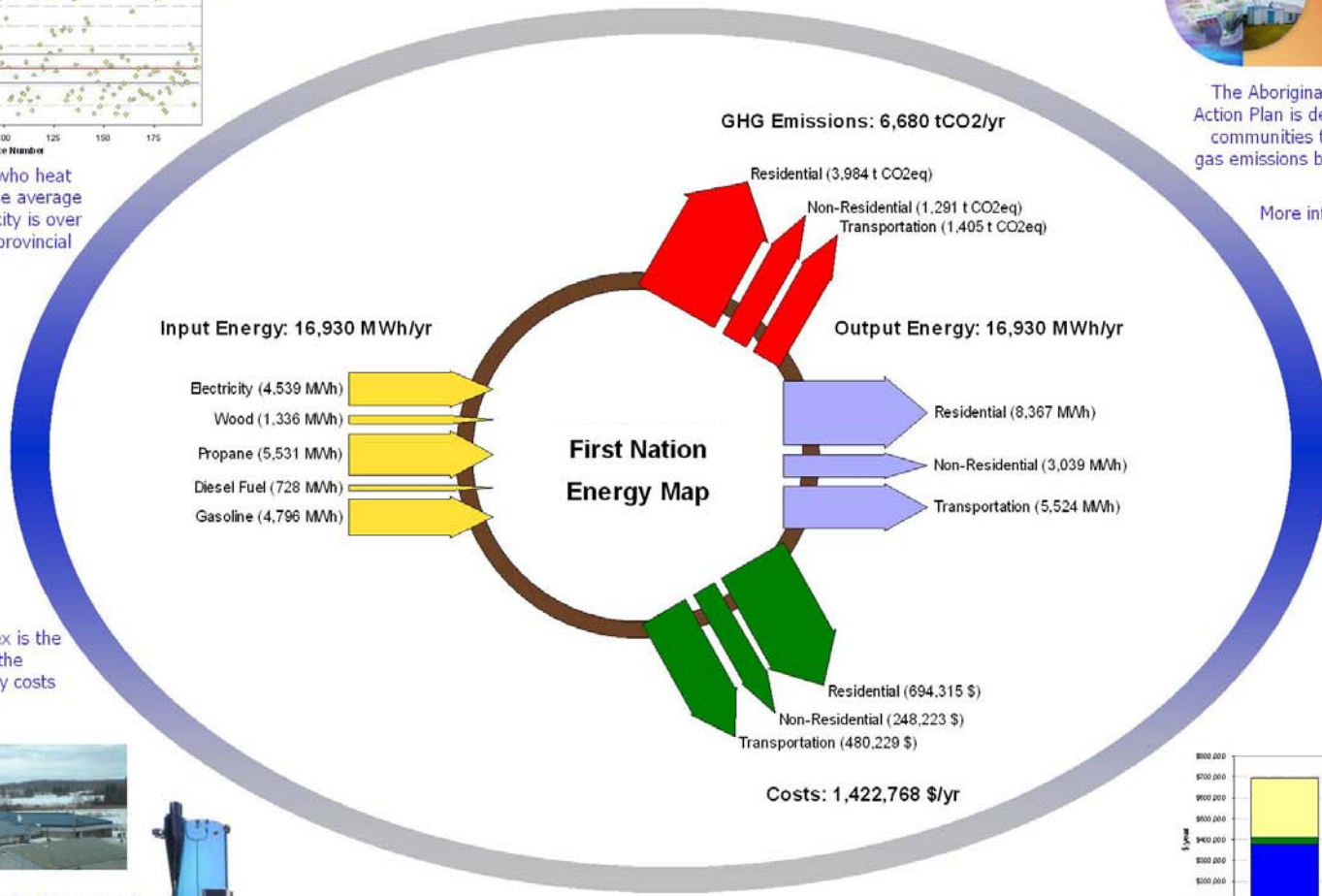
Electricity is the largest cost and source of greenhouse gases from the community.

Due to the number of people who heat their homes with electricity, the average annual consumption of electricity is over 17,000 kWh, about twice the provincial average.



The Aboriginal and Northern Community Action Plan is designed to financially assist communities to reduce their greenhouse gas emissions by implementing alternative energy projects.

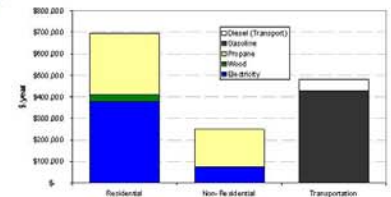
More information can be found at: www.ainc-inac.gc.ca/clc/



The School complex is the largest energy consumer on the Reserve. Total annual energy costs are over \$100,000 per year.



Converting the school to a wood pellet boiler system could save as much as \$65,000 per year compared to propane heating.



Electricity and Gasoline are the largest annual energy costs in the community.



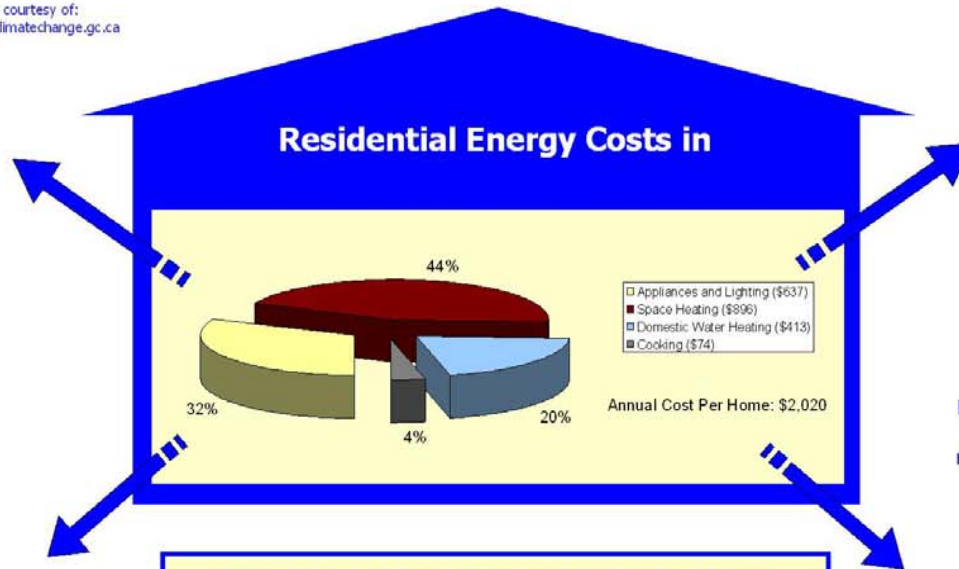
FIRST NATION – ENERGY USE IN THE HOME



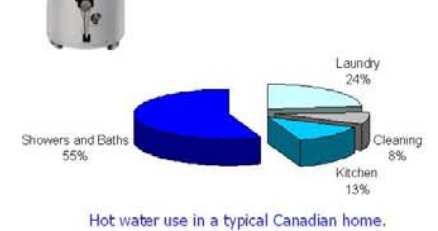
Burning fuels such as coal, gasoline, diesel and natural gas releases gases into the atmosphere that are causing the planet to warm. Global warming will result in floods, loss of forests, changes in animal migration patterns and increases in pests.

Picture courtesy of: www.climatechange.gc.ca

Saving energy not only means saving money, but reduces greenhouse gas emissions to help stabilize our planet's natural balance. You can learn more about reducing your emissions: www.onelesstonne.ca



Switching the hot water tank from electric to natural gas can save up to \$200 per year on water heating costs.



Hot water heating costs over \$400 per year for most residents in Canada. Low-flow showerheads are an inexpensive way to save money on hot water.



Wood heating is one of the easiest ways for residents in Canada to make major savings in heating costs. Supplementing or switching to wood heating could save as much as \$500 per year in heating costs.



- Energy Savings Tips for Around Your Home**
- Turn the heat down in your home to 21°C during the day
 - Turn the heat down to 18°C when you go to sleep at night
 - Use cold water to wash clothes
 - Turn your car engine off every time you get out
 - Hang your clothes to dry in the summer months
 - In winter, close curtains at night to keep heat in

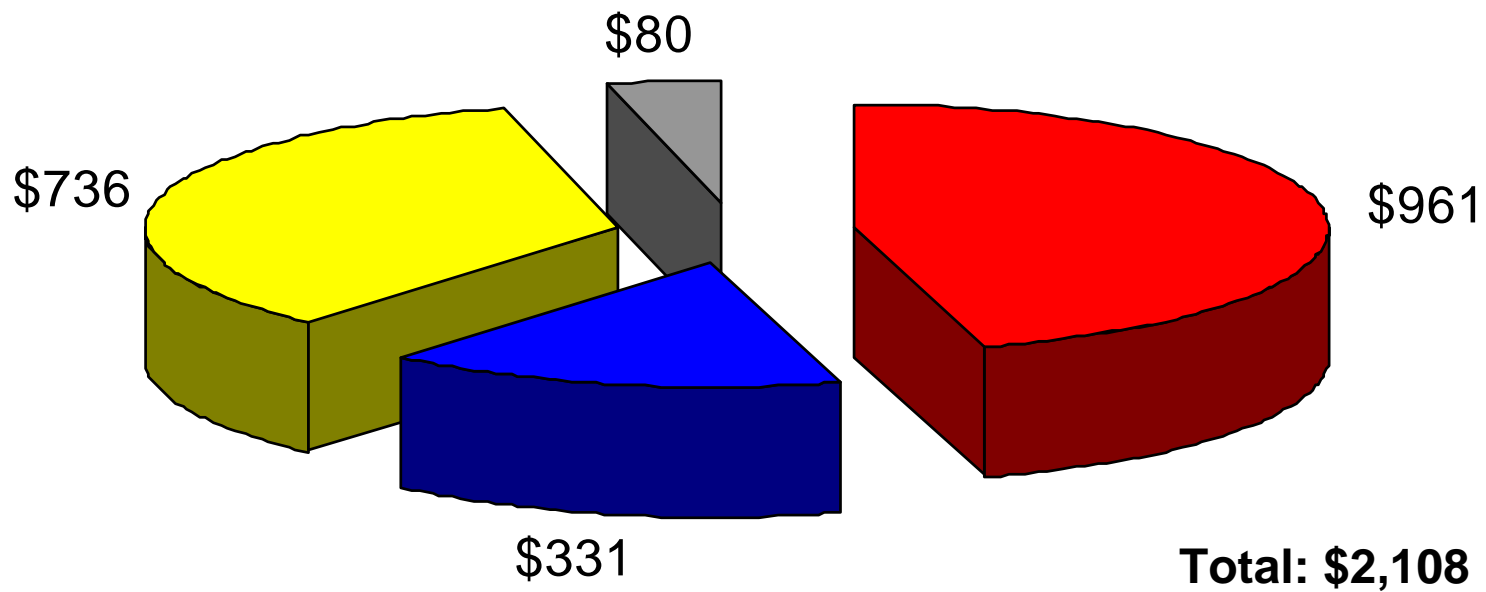
Front-loading washing machines can save as much as \$200 per year in water heating, electricity and soap.



CFL light bulbs (right) can pay for themselves in 1-2 years. Larger energy savers such as high efficiency furnaces and refrigerators are particularly economic when they are purchased in place of new ones.



Typical Alberta Reserve Home Annual Costs



- space heating cost
- domestic hot water cost
- appliance and lighting cost
- cooking cost

Options for Canadian Homeowners



- R-2000 Standard
 - *A voluntary performance standard and quality assurance procedure for the construction and certification of energy-efficient home*
- EnerGuide for New Houses
 - *An energy evaluation program developed by Natural Resources Canada (NRCan) that helps homeowners understand their current energy use and identifies ways to make their house more comfortable and energy-efficient.*





Residential Energy Efficiency



- R-2000 Housing Standards (TSAG Delivery Agent)



- EnerGuide



The R-2000 Standard

A voluntary national “Standard” launched in 1982, over 10,000 houses certified

R-2000 houses are typically 30% more energy efficient than conventional houses

Contains requirements in addition to the Building Code (for example: IAQ, Low-E Argon windows)

Builders must be trained & licensed

House must undergo plan evaluation, inspection and air tightness testing to be certified R-2000.



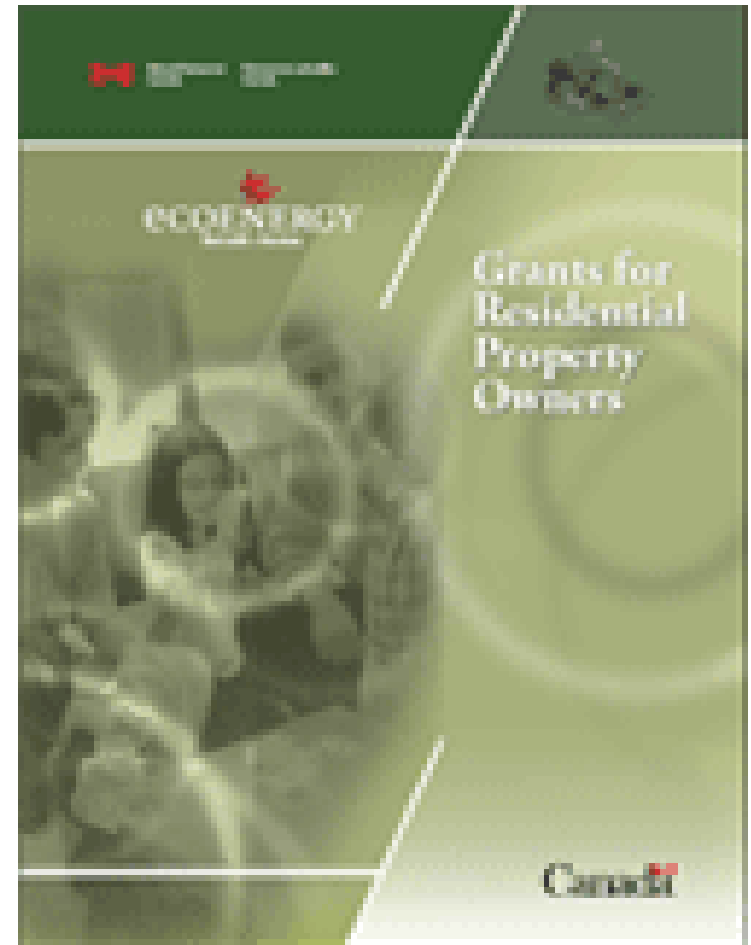
The R-2000 Performance Standard

*All Building Code prescriptive legal minimums,
plus requirements for:*

- energy performance
- indoor air quality (ventilation and low-emission materials)
- training the construction and HVAC industries
- environmental responsibility

Grants for Residential Property Owners

- The maximum grant one can receive per home or multi-unit residential building is \$5,000; whereas the total grant amount available to one individual or entity for eligible properties over the life of the program is \$500,000.





Grants for Residential Property Owners

- ecoENERGY Retrofit – Homes is available to owners of single family homes including detached, semi-detached and low rise multi-unit residential buildings. Property owners can qualify for federal grants by improving the energy efficiency of their homes, and reducing their home's impact on the environment.

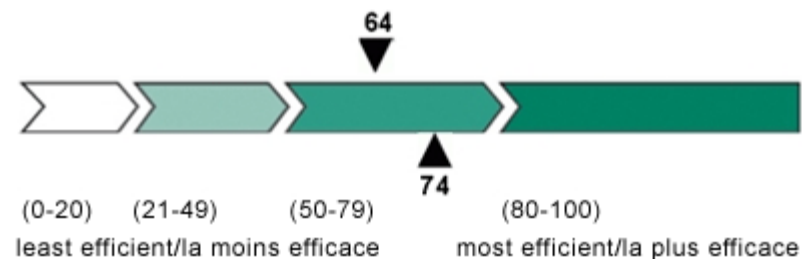


Grants for Residential Property Owners

- Only homes that have been evaluated using NRCan's residential energy assessment service will be eligible for a grant.
- The service includes:
 - a detailed energy evaluation of your home carried out by a licensed energy advisor
 - a "blower door" test to find air leaks

Grants for Residential Property Owners

- an energy efficiency rating label that shows you how energy efficient your home is compared with others in your region
- a printed report that shows where your energy dollars are being spent and what you can do to improve your home's energy efficiency



What Energy ratings mean

- 0-50 Old house, not upgraded
- 51-65 Old house, some upgrades
- 65-75 EE upgraded old
- 68-82 New house (ee new = about 75 to 82)
- 80 Minimum level for an R-2000 house
- 80-90 Highly EE new house
- 91-100 House approaching zero-energy (100)



ENERGY STAR

- The ENERGY STAR for New Homes initiative promotes energy efficiency guidelines that enable new homes to be approximately 30 percent more energy efficient than those built to minimum provincial building codes. The increased efficiency of these homes translates into reduced energy costs for homeowners.





ecoENERGY Retrofit Incentive for Buildings (old CBIP)

- Commercial/institutional component of the ecoENERGY Retrofit financial incentives for existing homes, buildings and industrial processes. New energy efficiency project could receive the lesser of \$10 per gigajoule of estimated energy savings or 25 percent of eligible project costs.
- When applying provide a pre-project energy audit of the building is required.
- Cannot incur any costs related to the project until you receive a signed Contribution Agreement from the Government of Canada.

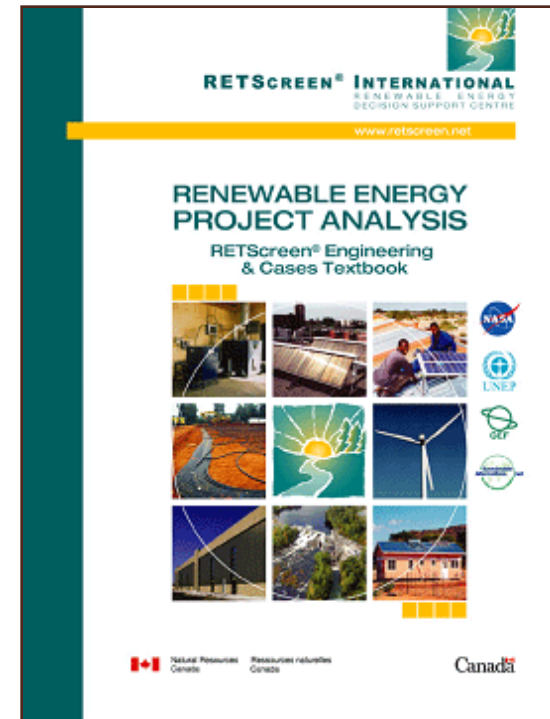


ecoENERGY Retrofit Incentive for Buildings

- **The Third Call for Proposals period runs from February 5 to March 31, 2008.**
- Access version 3.0 of the [application guide and forms](#) and a summary of [important updates](#).
- Submit a proposal any time during this period and the review and approval process immediately.

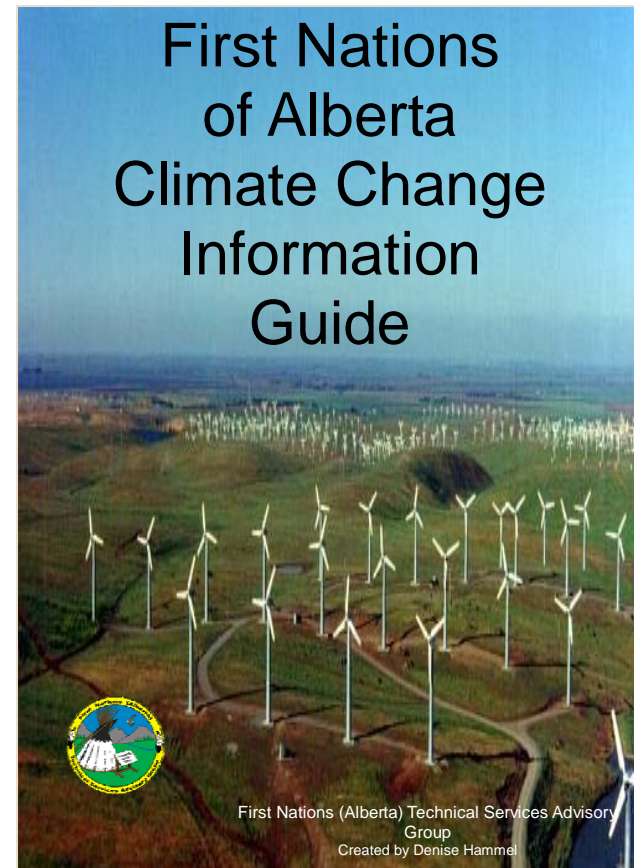


- Renewable Energy applications
- Pre-feasibility software
- Technical training
- On line study group
- Certification



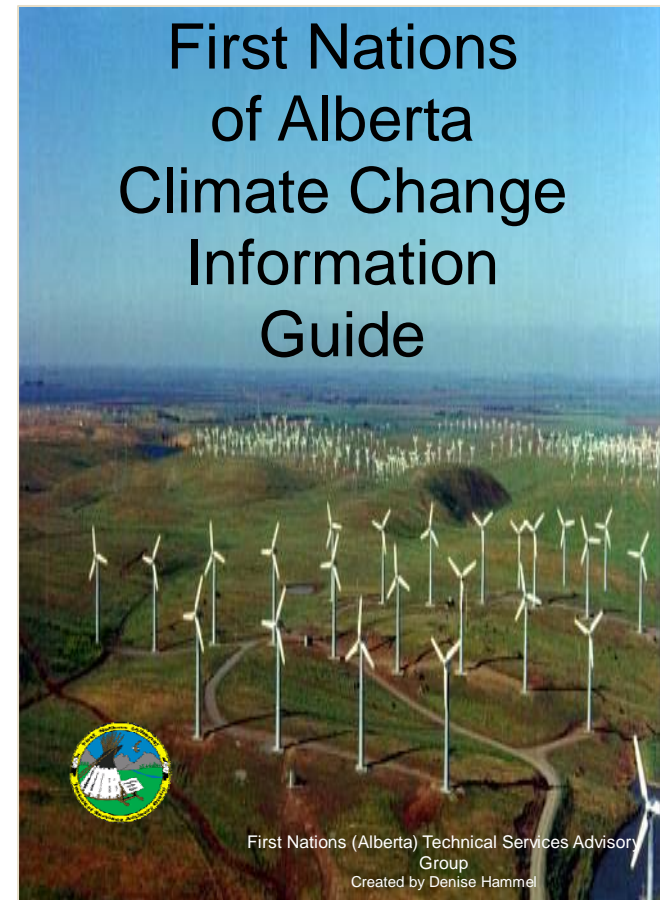


First Nations of Alberta Climate Change Information Guide



Who and What is the First Nations Energy Guide for ?

- Band Managers; Capital Project Managers; Economic Development; and Engineers
- Assists with RE/EE project management and applications





Questions and answers

Thank you

Denise Hammel